U.S. Army Research Institute for the Behavioral & Social Sciences

FACT SHEET

SIMULATION SUPPORT FOR AH-64A BACK UP CONTROL SYSTEM TRAINING

In response to a series of incidents and mishaps involving the AH-64A, the U.S. Army determined that AH-64A aviators needed flight training in a device capable of accurately simulating the necessary control handovers or handling qualities of the Back Up Control System (BUCS). None of the current training devices can simulate BUCS, or flight control feel and behavior after BUCS engagement.

The Army Research Institute Rotary Wing Aviation Research Unit (ARI-RWARU), PERSCOM, Aviation Training Brigade (ATB), U.S. Army Aviation Center, Fort Rucker; and APACHE Modernization Product Manager Office (PMO), Redstone Arsenal, Huntsville, AL, agreed to a memorandum of understanding concerning the conduct of flight simulator support for BUCS (back-up control system) training for AH-64A aviators at Fort Rucker, Alabama.

The STRATA (Simulator Training Research Advanced Testbed for Aviation) simulator located at ARI-RWARU, Fort Rucker, was identified as a primary resource to train AH-64A aviators at Fort Rucker. The STRATA research simulator has BUCS already modeled in the control loading system. STRATA's simulation of the BUCS system includes control tube severance, SPAD (shear-pin actuated decoupler) breakage, crew contention, BUCS malfunctions, related systems malfunctions that affect BUCS (primary hydraulics failure; total A/C power loss), and handling / flight characteristics for both normal and BUCS modes. To define the area of STRATA usage and support for the AH-64A BUCS training program, the following was proposed:

ARI-RWARU supports the training requirement through:

- Engineering and software support for modifying the STRATA configuration in order to maintain support for BUCS training;
- Behavioral research support developing evaluative methodology and experimental designs, which will

- yield valid data for the BUCS training program;
- Use of STRATA for each new class in the AH-64A aircraft qualification course;
- Sets of functioning STRATA initial conditions / scenarios to support BUCS training;
- Engineering support services necessary to operate and maintain STRATA for training;

And subject matter expertise related to:

- Initialization of the training scenarios;
- Operation of control pages at the experimenter-operator station;
- Briefings on simulator operation and safety;
- And related data collection activities.

The Project Manager, Apache Modernization, is providing subject matter expertise, and timely notification of BUCS issues and program goals.

The Aviation Training Brigade is providing Instructor Pilots for BUCS training.

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